

# Measuring Sustainable Food Systems

13<sup>th</sup> Leman China

OCT, 2024

Gordon and Randy Spronk, SBIII, Minnesota

## ENVIRONMENTAL PYRAMID

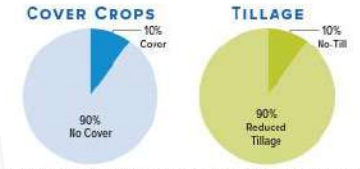


## FOOD PYRAMID



# Pork Cares Farm Impact Reports

- Program funded by pork producers in the U.S.
- For the 2021 crop year, 2.4 million pigs from 375 different sites participated
- Nearly 200,000 acres from more than 3,000 fields and 200 farms are included



According to the 2017 US Ag Census, the national average is **4% cover crop adoption, 37% no-till adoption and 35% reduced till adoption.**

## SOIL CONDITION INDEX (SCI)

SCI is an NRCS tool that shows soil health trajectory. A positive SCI means a positive trajectory of soil health and vice versa.

The fields in the project are an overall **+** trajectory for SCI.

## LAND

## FIELD PRACTICE COMPARISON FACTS

1 compared to conventional practices (i.e. conventional tillage, no cover crop scenario), in-field practices generated:

**935** fewer tons of CO<sub>2</sub>e, which is the same as

**182** average passenger cars off the road for a year

**255** tons of soil carbon sequestered

**94** tons of soil saved instead of being lost to erosion, which is the same as

**25** dump trucks of soil

PorkCheckoff:  
Using greenhouse gas emissions, reducing soil erosion, and reducing  
Guides and publications from the EPA. These values are based on  
a major universities. Model results include input data from public  
inventory (2017) soil developed by Soil Metrics, LLC (2020).  
Daily Quantifying Greenhouse Gas Fluxes in Agriculture and Forestry  
model, licensed by Colorado State University to Soil Metrics, LLC.

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## SUSTAINABILITY ANALYSIS

### 2022 PORK CARES FARM IMPACT REPORT

### About Spronk Brothers III LLP

Randy and Gordon Spronk DVM are managing partners of Spronk Brothers, a pork operation near Edgerton, Minnesota. Spronk Brothers was formed in 1991. The brothers also manage Ranger Farms, a grain farming entity. The operation has continued to expand over the years. Randy has served within the National Pork Producers Council and the Minnesota Pork Producers Association.

### Quantifying the Impact of Actual Farm Practices

The EcoPractices® platform determines environmental benefits through its unique process that can pinpoint specific influences of individual agricultural practices. While agricultural practices have progressed to better care for natural resources, the ability to quantify the influence these practices have on sustainability has not kept pace. Spronk Brothers III seeks to put evidence-based measurements to its farm practices. Having such data brings more depth to decision-making. Short- and long-term goals can be based upon more meaningful information.

CROP	YIELD
Cereal Rye	97 bu/ac
Corn Grain	174 bu/ac
Soybean	51 bu/ac

Conservation Practice	Fields	Acres
Buffer	1	2
Grassed Waterway	12	51

**2,194** acres from **17** fields



Swine Inventory: **16,800**  
Defined as Sow and/or Finished Pigs per Year

### WE CARE® ETHICAL PRINCIPLES

The We Care initiative was launched in 2008 as a joint effort of the National Pork Board, the National Pork Producers Council (NPPC) and state organizations representing farmers. Through the We Care initiative, they hope to earn the public's trust by making this industry better for all concerned — animals, farmers, food industry partners and consumers worldwide.

- Food Safety
- Animal Well-Being
- Environment
- Public Health
- Our People
- Our Communities

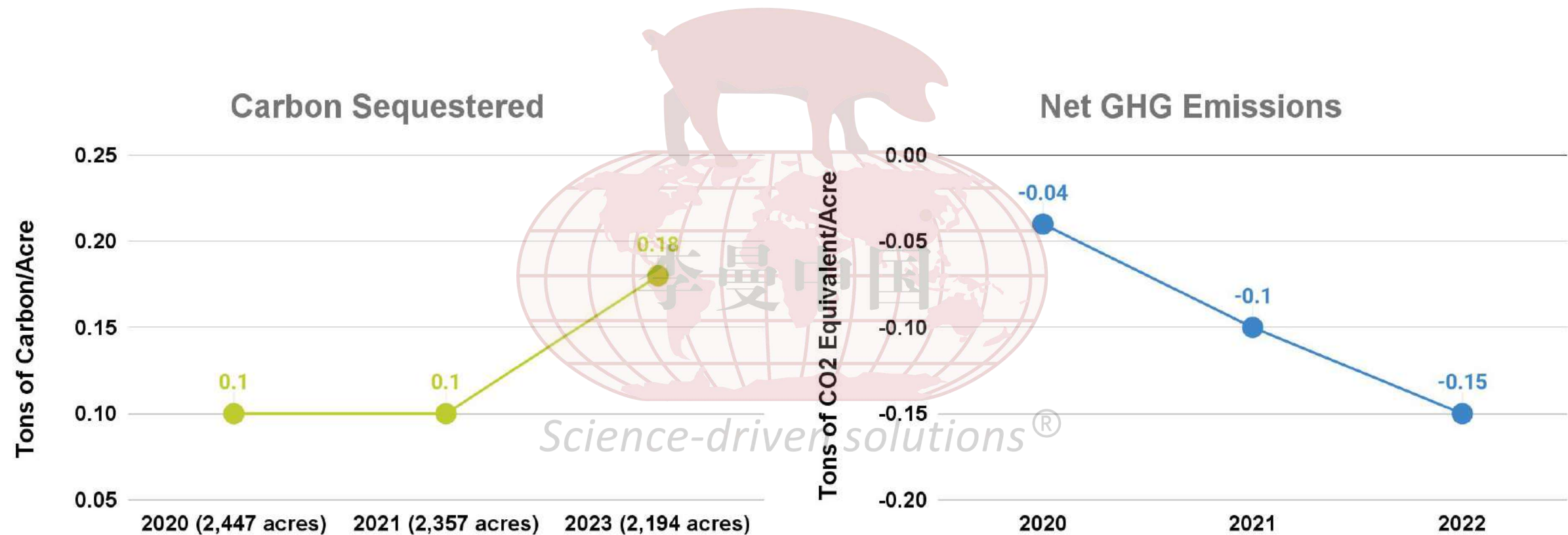
### NATIONAL PORK BOARD'S ENVIRONMENTAL INITIATIVE

One pillar of the We Care Ethical Principles is Environment. This includes the use of manure as a valuable resource in a manner that safeguards air and water quality, includes air quality from production facilities to minimize the impact on neighbors and the community, and includes managing operations to protect the quality of natural resources.

- Air Quality
- Carbon Footprint
- Emergency Action Plan
- Manure & Site Management
- Feed Management
- Mortality Management
- Water Conservation

**82%** of fields have updated soil tests

# Best Management Practices Lead to Soil Health



Source: Pork Checkoff-funded On-Farm Sustainability Impact Report prepared by Sustainable Environmental Consultants for Spronk Brothers III, LLP.

# Regenerative Agriculture Cropping Practices: Similar to 182 Passenger Cars off the Road for a Year



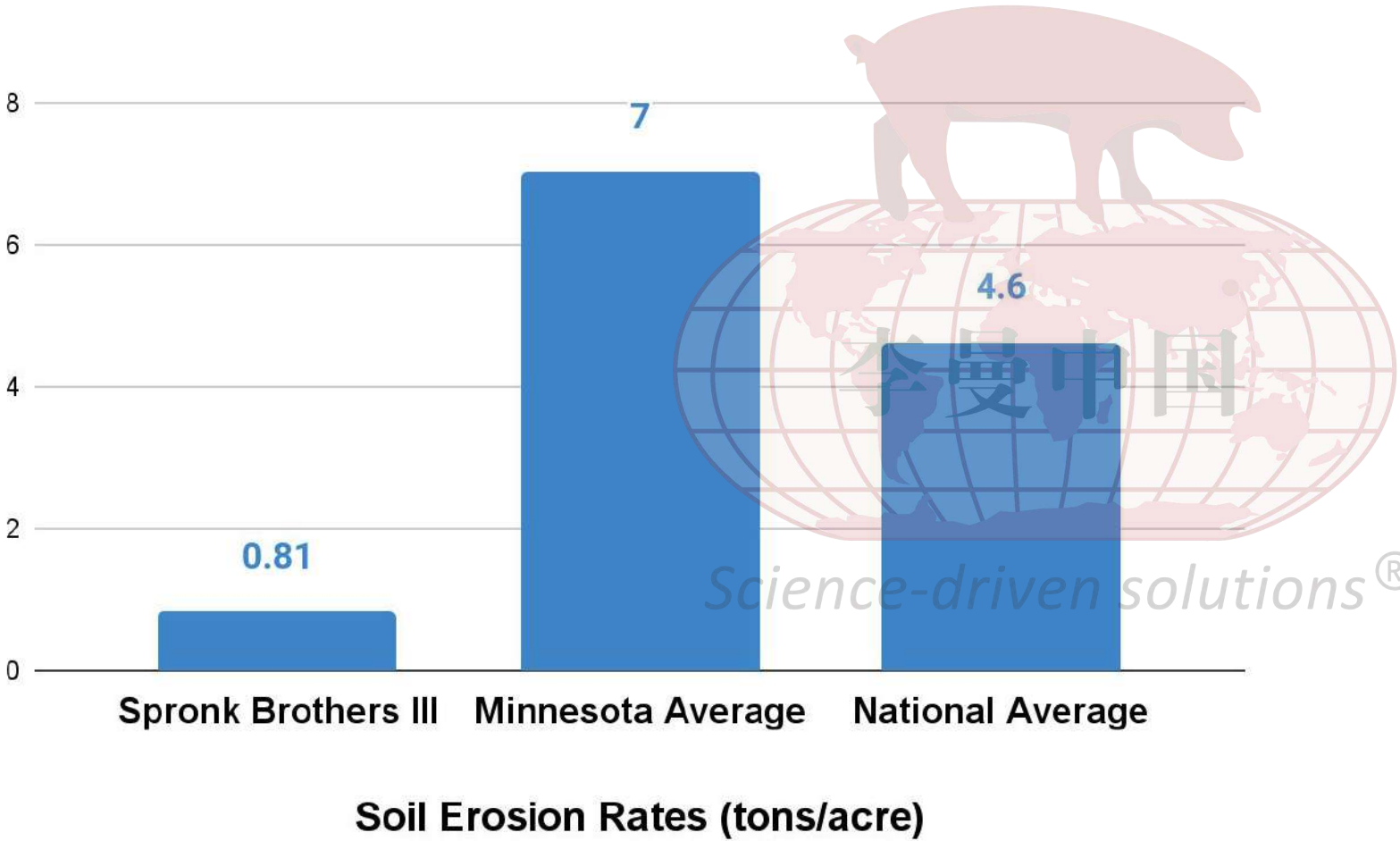
**935 fewer** tons of  
CO<sub>2</sub> equivalent emitted

**255 tons** of  
soil carbon sequestered

**394 tons** or  
25 trucks of soil saved



# In-Field Management Practices Protect Soil Nutrients



Source: Pork Checkoff-funded On-Farm Sustainability Impact Report prepared by Sustainable Environmental Consultants for Spronk Brothers III, LLP.

# U.S. Pork:

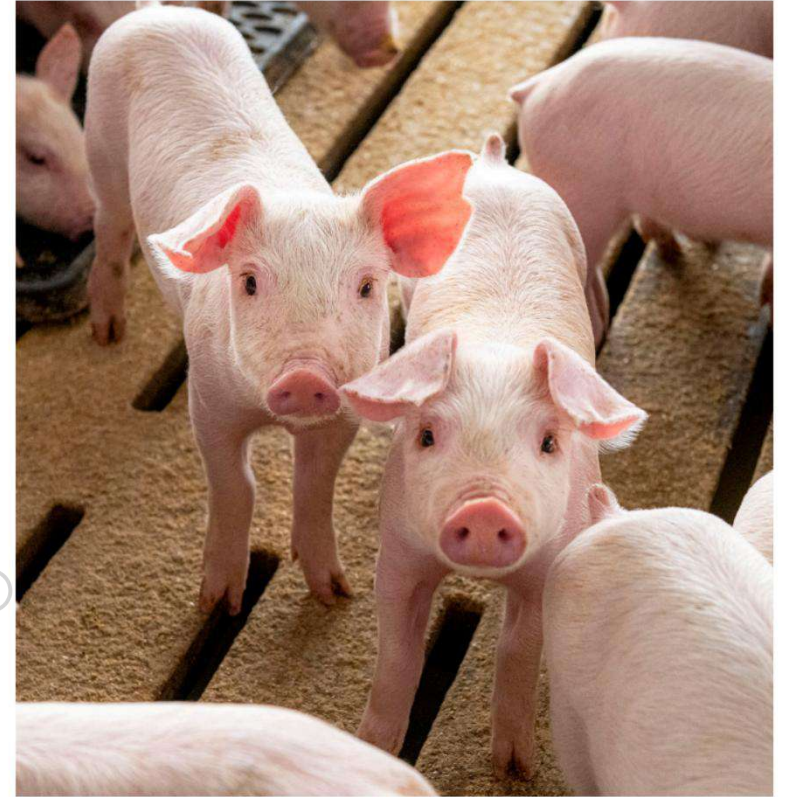
An Industry-Wide  
Commitment

*Science-driven solutions*®

U.S. Pork  
Industry

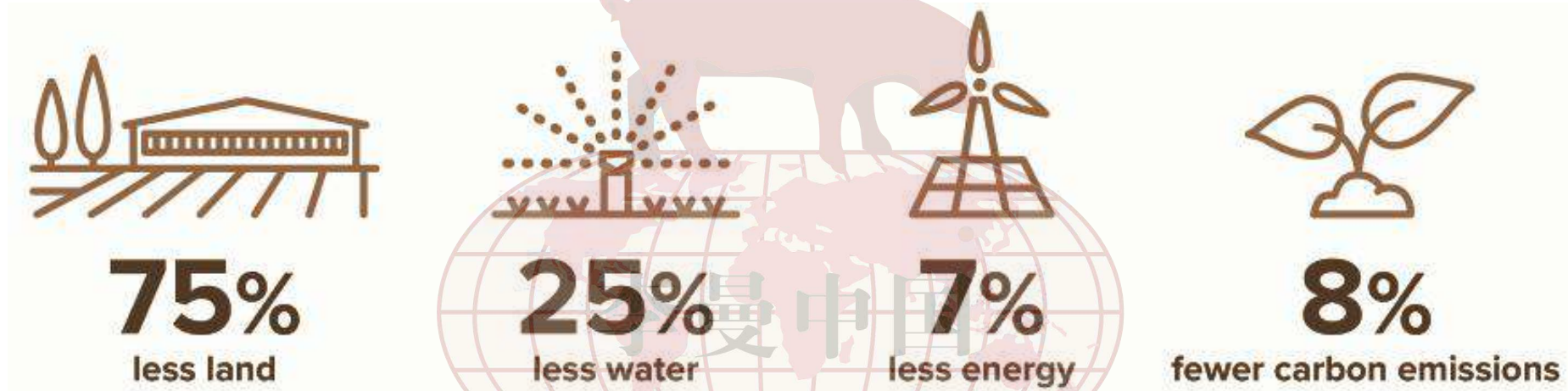
A COLLECTIVE STEP  
FORWARD FOR PEOPLE,  
PIGS AND THE PLANET

2021  
Sustainability  
Report

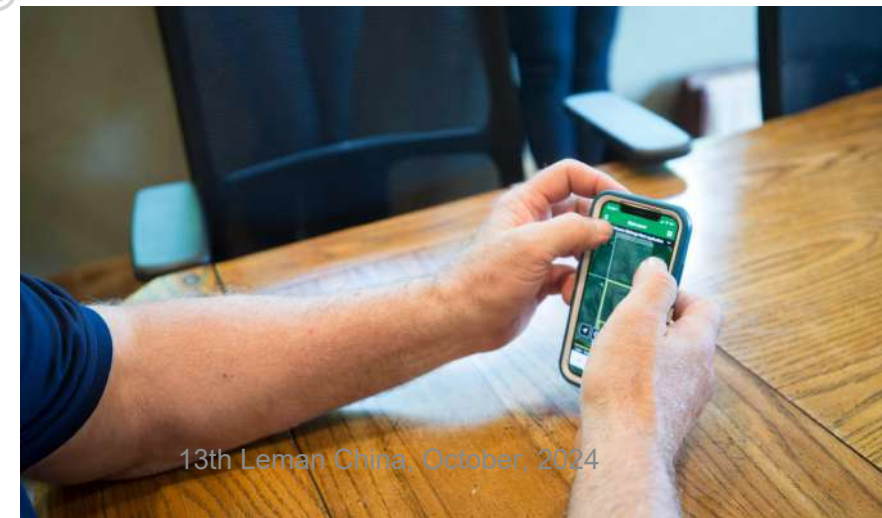




# In the Past Six Decades, U.S. Pork Production has Improved by Using:



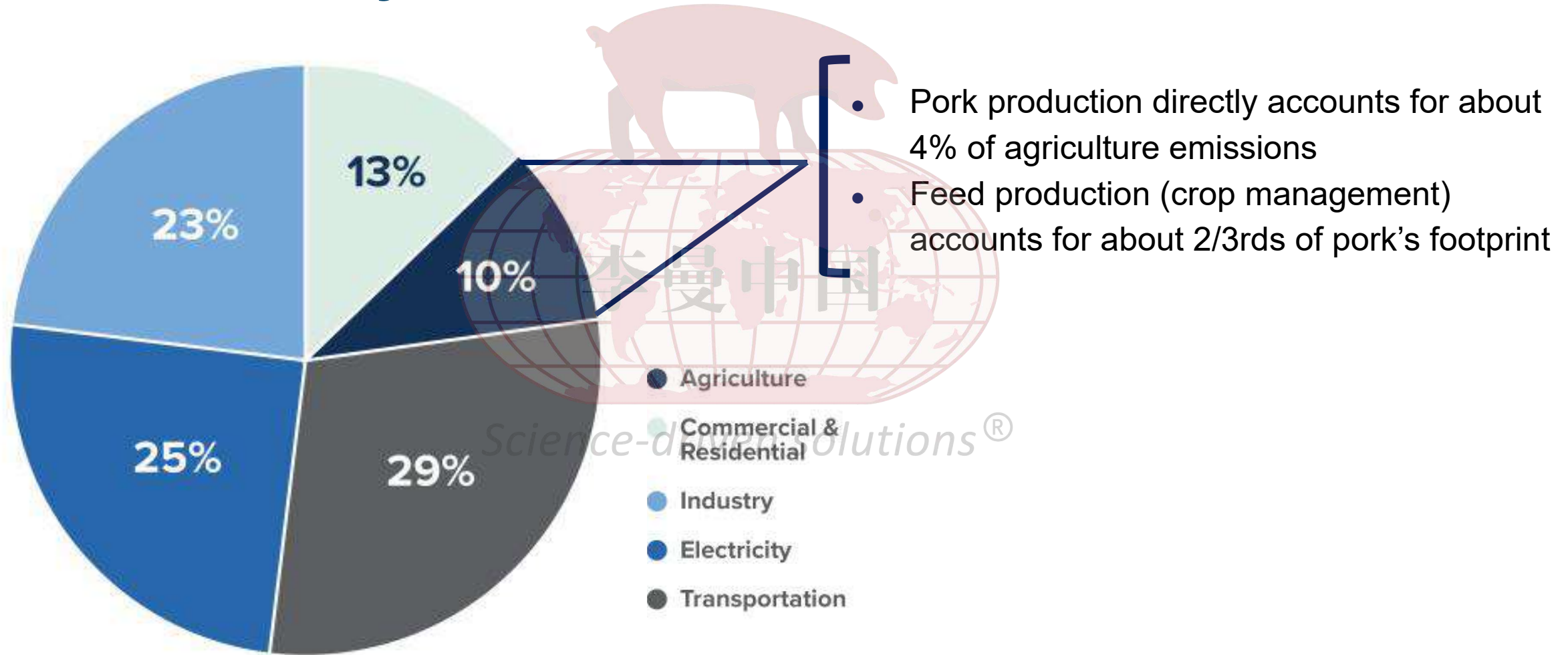
Source: [University of Arkansas. 2018. A Retrospective Assessment of US Pork Production: 1960-2015](#)



13th Leman China, October, 2024



# Total U.S. Greenhouse Gas Emissions by Economic Sector in 2019



# Sustainability for the U.S. Pork Industry Honors the UN Definition and our Industry's Ethical Principles



*“Meeting the needs of the present without compromising the ability of future generations to meet their own needs”*

Source: [UN Sustainable Development Agenda](#) and [2021 U.S. Pork Industry Sustainability Report](#)



# Pork Industry Sustainability Commitments & Goals



Source: [UN Sustainable Development Agenda](#) and [2021 U.S. Pork Industry Sustainability Report](#)

# 2021 Crop Year Aggregate U.S. Pork Industry Data



↓ 109,318 CO<sub>2</sub>e



29,383 tons of soil carbon sequestered



118,270 tons of soil saved



652 tons of nitrogen saved



117 tons of phosphorus saved

*Source: Pork Cares Snapshot Report funded by the Pork Checkoff and prepared by Sustainable Environmental Consultants based on data from the 2021 crop year provided by, and analyzed for, farmers overseeing care of 2.4 million pigs and 188,545 acres.*



# Importance of Technology and Innovation

- Facilitates sustainable intensification (i.e., increased productivity, lower environmental impact)
- Essential to achieving sustainability objectives
- However, trade barriers can block access to critical technologies



# Barriers to Innovation - Examples

- Crops raised for feed

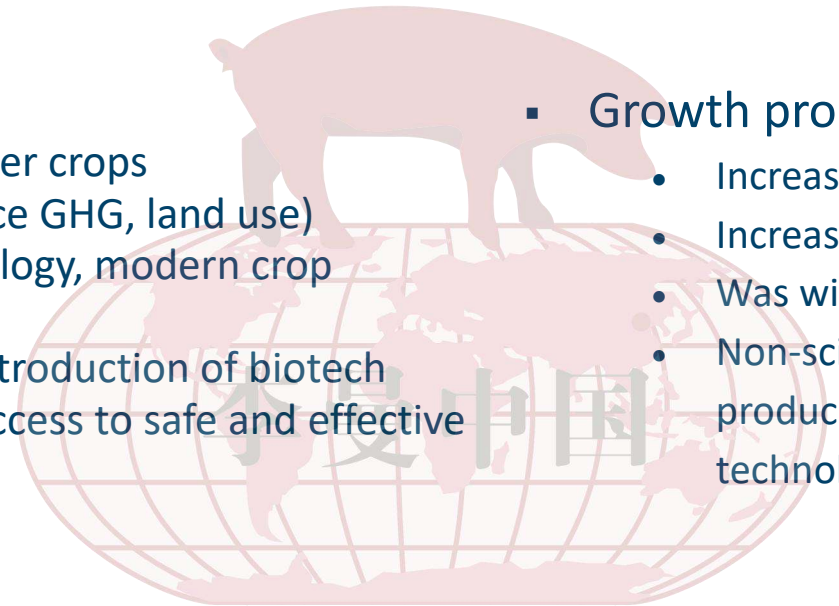
- Increase in no-till, low-till, cover crops
- Environmental benefits (reduce GHG, land use)
- Impossible without biotechnology, modern crop protection products
- Regulatory barriers impede introduction of biotech crops and threaten to block access to safe and effective pesticides

- Growth promoters

- Increased carcass weight by 3 kg
- Increased feed efficiency by more than 10%
- Was widely used in the U.S. and around world
- Non-science-based trade restrictions forced many producers to abandon safe and effective technology

- Antibiotics

- Essential to large-scale production
- Use restrictions in U.S. and elsewhere manage risk of AMR
- However, arbitrary, non-science-based restrictions on antibiotic use threaten viability of production systems without increasing protection against AMR





# Importance of technology and innovation



- Achieving sustainability/climate change goals will require more, not less, technology and innovation
- Important to prevent introduction of arbitrary, non-science-based trade barriers that will stifle innovation

# Thank you

